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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,052	06/27/2003	William Edward Burdick JR.	120377-1/YOD GERD:0060	6909

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EXAMINER
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ART UNIT	PAPER NUMBER
2813	

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/609,052	BURDICK ET AL.	
	Examiner	Art Unit	
	James M. Mitchell	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-10,12-16 and 18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-10,12-16 and 18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to the amendment filed March 9, 2005.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 7-10, 12-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paurus et al. (U.S. 5,448,511) in combination with Castro (U.S. 5,045,914).

Paurus (Fig 1,3, 7) discloses an electronic component assembly, comprising: a flexible printed circuit (104); a first modular section (1st U shaped portion from bottom) formed on the flexible printed circuit, comprising: a first electronic component (1st item 132 from bottom) electronically coupled (Fig 1; contact not labeled) with the flexible printed circuit, a second component (2nd form bottom, 132) electronically coupled with the flexible printed circuit, the flexible printed circuit folded to position the components in generally mutually facing relation; and, an inter-component thermal management device (308) disposed between the components, in thermal relation with the components, for removing or stabilizing thermal energy from the components during operation; a second modular section (2nd U shape form bottom; [elements follow as indicated in 1st modular section]) comprising: a first component electronically coupled with the flexible printed circuit; a second component electronically coupled with the

flexible printed circuit, the flexible printed circuit folded to position the components in generally mutually facing relation; and, a further inter-component thermal management device disposed between the components in thermal energy from the relation with the components, for removing or stabilizing components during operation, the flexible printed circuit being folded to form a stack of the modular sections; (cl. 4) with components (132) having identical or similar functions (i.e. Abstract, ",memory device"); (cl. 10, 16) wherein the components of the first modular section and the second modular section are disposed on a first side of the flexible printed circuit and a third modular section (3rd U from bottom), similar to the first and second modular sections, is disposed on a second side (Fig 7 , 9 shows embodiment with components on first and second surfaces of board) of the flexible printed circuit opposite to the first side, the flexible printed circuit' being folded to form a stack of the modular sections; (cl. 7, 14) with the assembly further comprising external contacts (140) for external signal communication; (cl. 9) and a thermal management device disposed on a second side of the board (i.e. thermal device along on both first and second sides of board; Fig 7); (cl. 15) with alternate arrangements of modulars).

Paurus does not show at least one-second thermal management device thermally connected to an inter-component thermal management device or that is positioned adjacent to one of the front or side face of the assembly[1].

[1] Furthermore, rearrangement of parts is obvious. See In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.); In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

Castro (Abstract; Fig. 10) utilizes at least one-second (176) thermal management device thermally connected to an inter-component thermal management device (178,172) and that is positioned adjacent to a front or side face of its assembly.

It would have been obvious to interconnect the thermal members of Paurus in order to increase heat dissipation surface area as taught by Castro (Abstract; Col. 8, Lines 4-16) thereby increasing heat dissipation.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paurus et al. (U.S.5, 448,511) and Castro (U.S. 5,045,914) as applied to claim 1 and further in combination with Degani et. al. (U.S. 6,734,539)

Neither Paurus nor Castro appears to show that the components have different functionality in operation.

Degani discloses utilizing components of different functionality ((Col. 1, Lines 15-35).

It would have been obvious one of ordinary skill in the art to form the components of the modified structure in Paurus with different functionality in order to reduce size in packaging as taught by Degani (Col. 1, Lines 15-35)

Claims 1, 2, 3, 7-9 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable Wang et al. (6,590,282) in combination with Castro (U.S. U.S. 5,045,914)

Wang (Fig 2B) discloses an electronic component assembly, comprising: a flexible printed circuit (44); a first component (52) electronically coupled (i.e. through

bumps) with the flexible printed circuit, a second component (52) electronically coupled with the flexible printed circuit, the flexible printed circuit folded to position the components in generally mutually facing relation and an inter-component thermal management device (86) disposed between the components, in thermal relation with the components, for removing or stabilizing thermal energy from the components during operation; (cl. 2, 3) wherein the component is an electronic component; (cl. 7) at least one external signal communication (60) interface on the flexible printed circuit for communicating signals between the components and external circuits;(cl. 8) further discloses a first modular section (i.e. bottom 44) formed on the flexible printed circuit, comprising: the first component electronically and a second component and a second modular section comprising: a first component electronically coupled with the flexible printed circuit; a second component (i.e. top 44) electronically coupled with the flexible printed circuit, the flexible printed circuit folded to position the components in generally mutually facing relation; and a further inter-component thermal management device (86) disposed between the components in thermal energy from the relation with the components, for removing or stabilizing components during operation, the flexible printed circuit being folded to form a stack of the modular sections; (cl. 9, 14) wherein the components of the first modular section and the second modular section are disposed on a first side (i.e. top portion) of the flexible printed circuit, and an inter-layer thermal management device (86 in region,74) is disposed on a second side of the flexible printed circuit opposite to the first side, the flexible printed circuit being folded to form a stack of the modular sections and the infer-layer heat dissipation device.

Wang does not show at least one-second thermal management device thermally connected to an inter-component thermal management device or that is positioned adjacent to one of the front or side face of the assembly[2].

Castro (Abstract; Fig. 10) utilizes at least one-second (176) thermal management device thermally connected to an inter-component thermal management device (178,172) and that is positioned adjacent to a front or side face of its assembly.

It would have been obvious to interconnect the thermal members of Wang in order to increase heat dissipation surface area as taught by Castro (Abstract; Col. 8, Lines 4-16) thereby increasing heat dissipation.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (U.S.6, 590,282) and Castro (U.S. 5,045,914) as applied to claim 1 and further in combination with Takahashi et al. (U.S. 6,765,299)

Neither Wang nor Castor appears to show that the components have identical, similar or different functionality in operation.

Takahashi teaches utilizing components of the same or different functionality (col. 3, Lines 32-40).

It would have been obvious to form the modified components of Wang with either identical, similar or different functionality in operation in order to achieve a predetermined necessity and purpose as taught by Takahashi (col. 3, Lines 32-40).

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[2] Furthermore, rearrangement of parts is obvious. See In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.); In re Kuhle, 526 F.2d 553, 188

Response to Arguments

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art in: Sono et al. (U.S. 5,703,398) and Moden et al. (U.S. 2002/0185725) the use of heat dissipating members thermally connected to enhance heat dissipation

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jmm
May 19, 2005

CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800